or in contact. The plate pairs are then stacked together in any desired number. Cooling fins **22** are located between the plate pairs during the stacking process. U-shaped channels **26, 28** are then cut to length to match the height of the stacked plate pairs. Any desired baffles are attached to the plate pairs at selected locations, and the U-shaped channels are then pressed, slid or clipped onto the ends of the stacked plate pairs enclosing the offset end flanges **58**. Top and bottom end plates **36, 40** are then located to close the open ends of the U-shaped channels. Any other fittings or attachments, such as inlet and outlet fittings **30, 32**, filler cap fitting **14** or brackets **38, 42** can be located on the assembly, and the entire assembly is then placed into a brazing furnace to braze the components together and complete the heat exchanger.

Having described preferred embodiments of the invention, it will be appreciated that various modifications may be made to the structures described above. For example, turbulizers could be used between the plate pairs if desired. The plates could be dimpled in the area of planar central portions **48**, as is common in dimpled plate heat exchanges. Other types of cooling fins could be used, or no fins at all. The heat exchangers could be made of other materials than brazing clad aluminum such as plastic. Also, the manifolds could have other shapes, if desired.

As will be apparent to those skilled in the art in the light of the foregoing disclosure, many alterations and modifications are possible in the practice of this invention without departing from the spirit or scope thereof. Accordingly, the scope of the invention is to be construed in accordance with the substance defined by the following claims.

What is claimed is:

1. A heat exchanger comprising:

a plurality of stacked plate pairs formed of mating plates having central planar portions and raised peripheral edge portions, said edge portions being joined together in mating plates to define a flow channel between the plates; the plates having offset end flanges, the respective flanges at each end of each plate pair diverging, the flanges having lateral edge portions extending from root areas located at the joined peripheral edge portions, the end flanges also having transverse distal edge portions joined together in back-to-back stacked plate pairs to space the plate pairs apart and form transverse flow passages between the plate pairs; opposed U-shaped channels enclosing the respective end flanges of the plate pairs, the channels having rear walls spaced from the plate end flanges and side walls joined to the flange lateral edge portions and extending inwardly beyond and covering said root areas, the U-shaped channels having open ends; end plates closing the U-shaped channel open ends to form manifolds; and the manifolds defining inlet and outlet openings therein for the flow of fluid through the plate pairs.

2. A heat exchanger as claimed in claim **1** wherein the plate end flange transverse distal edge portions are in the form of flange extensions extending generally parallel to the plate central planar portions.

3. A heat exchanger as claimed in claim **1** wherein the plate raised peripheral edge portions are formed with transverse notches located between but adjacent to said root areas, and wherein the U-shaped channel side walls have inwardly disposed peripheral flanges adapted to snap into said notches.

4. A heat exchanger as claimed in claim **3** wherein said notches have a depth greater than the width of the U-shaped channel side wall peripheral flanges.

5. A heat exchanger as claimed in claim **2** and further comprising a baffle attached to one of said flange extensions and extending between the U-shaped channel rear and side walls to divide the manifold into a plurality of compartments.

6. A heat exchanger as claimed in claim **2** and further comprising heat transfer fins located between the plate pairs and in contact with the plate planar central portions.

7. A heat exchanger as claimed in claim **3** and further comprising heat transfer fins located between the plate pairs and in contact with the plate planar central portions.

8. A heat exchanger as claimed in claim **2** wherein said transverse distal edge portions are formed with notches therein to adjust the flow distribution through the U-shaped channels.

9. A heat exchanger according to claim **1**, wherein the end plates are formed with offset end flanges.

10. A heat exchanger according to claim **9**, wherein the U-shaped channels are formed with parallel, U-shaped, inwardly disposed ribs adjacent to their ends to accommodate and act as locating guides for the offset end flanges of the end plates.

11. A heat exchanger according to claim **2**, wherein the U-shaped channels are formed with parallel, inwardly disposed, closely spaced-apart, short ribs sandwiching therebetween the peripheral edges of the flange extensions.

12. A heat exchanger according to claim **1**, further comprising an extended distal flange extension on one of the plates of a plate pair, said extended distal flange extension extending fully between the U-shaped channel rear and side walls to form a baffle.

13. A heat exchanger according to claim **12**, wherein the U-shaped channel is formed with an inwardly disposed boss abutting and connected to said baffle.

14. A heat exchanger according to claim **5**, wherein the U-shaped channel is formed with an inwardly disposed boss abutting and connected to said baffle.

15. A heat exchanger according to claim **9**, further comprising end plate side skirts extending integrally around each offset end flange to form a pan that engages a respective one of the U-shaped channels.

16. A method of making a heat exchanger comprising the steps of:

providing an elongate strip of plate material having a planar central portion and raised peripheral edge portions; cutting the plate material into predetermined lengths; forming the plate lengths with offset end flanges extending in a direction away from the raised peripheral edge portions; arranging the plate lengths into plate pairs with the offset end flanges diverging and the plate peripheral edge portions in contact so as to define root areas at the joined peripheral edge portions; stacking said plate pairs so that the end flanges engage to space the plate pairs apart; providing U-shaped channels enclosing the plate offset end flanges, the channels having open ends and side walls joined to the flange lateral edge portions and extending inwardly beyond and covering the root areas; closing the open ends of the channels to form manifolds; forming inlet and outlet openings in the manifolds; and joining the plates and manifolds together to form a sealed heat exchanger.

17. A method of making a heat exchanger as claimed in claim **16** wherein the plates are arranged in a predetermined number of plate pairs having a predetermined height, wherein the U-shaped channels are provided in lengths at least as long as said predetermined height, and wherein the

channel open ends are closed by providing end plates on each end of the stacked plate pairs extending between and closing the channel open ends.

18. A method of making a heat exchanger as claimed in claim **16** and further comprising the steps of providing a plurality of cooling fins and inserting said cooling fins respectively between the plate pairs.

19. A method of making a heat exchanger as claimed in claim **17** and further comprising the steps of providing a plurality of cooling fins and inserting said cooling fins respectively between the plate pairs.

20. A method of making a heat exchanger as claimed in claim **16** and further comprising the step of dividing the heat exchanger into zones by providing baffles in the U-shaped channels engaging the offset end flanges.

21. A method of making a heat exchanger as claimed in claim **17** and further comprising the step of dividing the heat exchanger into zones by providing baffles in the U-shaped channels engaging the offset end flanges.

22. A method of making a heat exchanger as claimed in claim **18** and further comprising the step of dividing the heat exchanger into zones by providing baffles in the U-shaped channels engaging the offset end flanges.

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